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Re: Response to DEQ and EPA Comments on the Lakeside Site *Source Control Evaluation (SCE)*, December 2013, Lakeside Industries, ECSI #2372

Dear Jim,

This letter provides responses to Oregon Department of Environmental Quality (DEQ) and the United States Environmental Protection Agency (EPA) comments (DEQ, 2014a; EPA, 2014) on the Lakeside Industries Source Control Evaluation (SCE) (Hahn, 2013).

The SCE was prepared by Hahn and Associates on behalf of Lakeside Industries for the Lakeside Industries Portland Plant located at 4850 NW Front Street in Portland, Oregon. Lakeside is an upland facility adjacent to the Lower Willamette River and the Portland Harbor Superfund Site. The Lakeside Industries SCE evaluates the historical and potential future migration of contaminants into the Lower Willamette River. The SCE also evaluates whether additional characterization or source control measures are required to address possible migration. DEQ requests that the SCE report be resubmitted after addressing comments and collecting additional groundwater sampling data.

The DEQ and EPA comments are generally thoughtful and relevant to clarifying the potential for contaminant migration pathways to the Willamette. We accept the majority of the comments, and our responses focus primarily on how to implement them. We provide additional discussion regarding Lakeside's conceptual site model, which will be more fully fleshed out by additional sampling and evaluation.

DEQ and EPA comments are repeated in italics for reference and are followed by our response.

DEQ COMMENTS

DEQ Comments 1-11 parallel EPA specific comments. For clarity and to prevent repetition, we address these comments by our responses to EPA specific comments.

Comment 12: Evaluate the potential impact of contaminated fill to the Willamette River by developing a groundwater sampling plan for wells located in the fill material. The plan should consider all site COIs and should consider sampling monitoring wells MW-44, MW-50, and MW-51. The groundwater data should be compared to JSCS SLVs and reported in the SCE. Please submit the groundwater sampling work plan to DEQ for approval.

This comment dovetails with EPA general comment 3 with the addition of a DEQ request for a groundwater sampling plan. A groundwater sampling plan for the fill area will be prepared and submitted to DEQ for approval.

EPA GENERAL COMMENTS

Comment 1. The halogenated volatile organic compound (HVOC) plume that originates on the Gunderson property is the primary source of HVOCs in groundwater at the Lakeside property. The SCE identifies the Gunderson HVOC plume as the only potentially complete contaminant migration pathway at the Lakeside property and therefore concludes that Gunderson is the party responsible for conducting the SCE for the groundwater pathway. EPA questions this conclusion and identifies the area at UIC #3 (former Drywell A) and the area along the former leaching line as other potential sources of HVOCs to groundwater; this conclusion is based on the high concentration of HVOCs in shallow groundwater at P-8 and P-8a, including detections of 1,1,2-trichloroethane (1, 1,2-TCA). Lakeside should perform additional characterization of these potential sources to determine whether contaminants are migrating to the Willamette River and whether additional source control measures are required beyond the ongoing treatment systems (groundwater extraction, air-sparge, and soil vapor extraction) currently operating at the Gunderson property. Former Drywell A at UIC #3 and the former leaching line received discharge from the floor drain located inside the Truck Shop where chlorinated solvents were reportedly used in degreasing operations. Characterization data for UIC #3 is limited to two groundwater samples collected at temporary borings P-8 and P-8a, and three soil samples collected at P-8a. No characterization of soil and groundwater has been completed along the leaching line. Several observations based on data collected at P-8 and P-8a suggests an additional HVOC source may be present at UIC #3. The first observation is the high concentrations of HVOCs detected in shallow zone groundwater at P-8a and lower concentrations of HVOCs detected in lower zone groundwater, suggesting a nearby source of HVOCs. The only other location where this vertical concentration profile is observed is at wells located in the proximity to the TCA dip tank source on the Gunderson property (i.e., MW-36 and MW-45). This vertical profile of high HVOC concentrations in the shallow zone and low concentrations in the deep zone is not consistent with the vertical concentration profile seen at the other multiple-depth groundwater samples collected in the downgradient area of the Gunderson HVOC plume. The second observation is the relatively high concentrations of 1,1,2-TCA and related HVOCs detected in groundwater at P-8 and P-8a that are not detected at significant concentrations elsewhere in the Gunderson HVOC plume. The compound 1,1,2-TCA is known to occur as an impurity in the more common used solvents [1,1,1- trichloroethane (1,1,1-TCA) and

trichloroethene]. The compound 1,1, 1-TCA is the primary HVOC in the Gunderson HVOC plume; however, I, I ,2-TCA concentrations in the plume are low to nondetect. The markedly different proportions of 1,1,2-TCA to l,l,l-TCA observed at P-8 and P-8a, as compared to proportions observed in the Gunderson HVOC plume, suggest another HVOC source in the vicinity of UIC #3. Additional characterization should be performed with the focus on determining whether UIC #3 and the former leaching line represent a separate source of HVOC groundwater contamination and delineating the extent of HVOC groundwater contamination downgradient from UIC #3. The additional characterization should be done in an iterative fashion, with an initial round of soil and groundwater samples collected from temporary borings advanced around UIC #3 and the leaching line to determine if HVOC is present. If the initial round of results indicates HVOC sources to groundwater, then additional borings and/or monitoring wells should be sampled to delineate the downgradient extent and to evaluate contaminant migration to the river. The list of chemicals of interest (COIs) for additional characterization should include volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), bis (2-ethylhexyl) phthalate (BEHP), and metals. As 1,4-dioxane has been found in conjunction with TCA detections, it should be specifically included as an analyte of interest for this work.

The HVOC concentrations found at P-8 and P-8a are influenced by and result from:

- source area TCA isomer ratios;
- isomer degradation rates; and
- site hydrogeology.

The observed concentrations do not require a separate TCA source at the P-8 and UIC #3 area. The detection of 1,1,2-TCA and elevated DCA degradation products in 2005 (P-8) and 2008 (P-8a) are consistent with a downgradient extent of the Gunderson TCA plume and location at the edge of the assumed Gunderson WEX-60 capture zone.

Available concentration data from near the release area on the Gunderson property indicate that 1,1,2-TCA is present at concentrations of approximately 0.6% of the observed 1,1,1-TCA concentrations. 1,1,2-TCA was likely present as a trace constituent in the source TCA solvent solution. For example, paired 1,1,1,-TCA and 1,1,2-TCA detections on the Gunderson property include:

- MW-36 (May 2005): 905 and 8.3 ug/L (0.9%)
- MW-38 (November 2006): 187 and 0.9 ug/L (0.5%)
- MW-45 (February 2005): 1,550 and 9.8 ug/L (0.6%)
- MW-49 (November 2005): 80.1 and 0.56 ug/L (0.6%)
- MW-70 (November 2005): 32 and 0.66 ug/L (2%)
- MW-71 (August 2007): 123 and 0.7 ug/L (0.6%)
- WEX-60 (November 2005): 168 and 0.53 ug/L (0.3%)

Degradation rates may also help to explain the 1,1,2-TCA detections with lower 1,1,1-TCA concentrations. In general, chloroethanes with chlorine on the number 2 carbon position degrade orders of magnitude more slowly (USGS, 2006). For example, a USGS summary of abiotic degradation rates lists 1,1,1-TCA's half-life as 1.1-2.5 years and 1,1,2-TCA's half-life as 140 years—a factor of 56 difference (Lawrence, 2006). The difference in half lives is similar for anaerobic degradation. This means that the 1,1,1-TCA to 1,1,2-TCA ratio will decrease with degradation, regardless whether abiotic or anaerobic degradation dominates.

In addition, DCA is expected to accumulate because its half-life is longer (61 years) than 1,1,1-TCA's half-life (2.5 years). The prevalence of DCA indicates enhanced degradation in the P-8 vicinity relative to other areas.

However, because the isomers have nearly identical sorption and Henry's law coefficients, the Gunderson air sparging and groundwater extraction influence their fate and transport equivalently. A supplemental air sparge/soil vapor extraction (AS/SVE) system was started in 2005 (LWG, 2011), which we would not expect to change the 1,1,1-TCA to 1,1,2-TCA ratio in the source area. As concentrations in the source area have decreased, the 1,1,2-TCA in the source area has likely been reduced to below reporting limits.

1,1,2-TCA concentrations in the source area are likely present, but below reporting limits at 0.6% of the TCA concentrations. AS/SVE has reduced source area concentrations to 20 ug/L, at which point 1,1,2-TCA is below reporting limits if it is less than 1% of the 1,1,1-TCA concentration.

The EPA comment suggests that the steep vertical gradients may indicate a separate source area. However, the site hydrogeology is a valid explanation of the steep vertical gradients. The gradient refers to detections of 1,1,2-TCA in silty sand between 26 and 30 ft below ground surface (bgs) (29.6 ug/L) and in gravel between 40 and 44 ft bgs (7.97 ug/L); 1,1 DCA and 1,2 DCA also decrease over this vertical interval (Hahn, 2013). This concentration gradient may be influenced by greater groundwater flux in the deeper gravel aquifer than through the lower permeability silts and sands. For example, a steeper concentration gradient is observed at MW-44 where 1999 vertical stratification results indicate 1,1,1-TCA concentrations decrease from 2,100 ug/L (41 ft bgs) to non-detect (53 ft bgs; reporting limit 1 ug/L) across the silt-gravel contact. Gunderson remediation well WEX-60 is screened in the gravel layer with a modeled capture zone that includes the P-8 area[1] (Ash Creek, 2013). WEX-60 has been pumping since 2004. Pumping in the gravel layer is expected to draw fresh groundwater in from the edges of plume. By design, this flushing in the gravel aquifer will reduce groundwater concentrations.

[1] The modeled capture zone was estimated using a method that does not account for the basalt escarpment a few tens of feet southwest of WEX-60. The gravel layer WEX-60 is screened in appears to terminate against this outcrop. The capture zone predicted by the modeling is likely incorrect and is likely to be strongly influenced by the extent and transmissivity of the gravel layer.

Therefore, we recommend that Lakeside should not be responsible for additional investigation related to the TCA and DCA detections at the P-8 area. The data do not indicate that a second source is present, apart from the known Gunderson plume. The mechanisms that influence the pattern of HVOC concentrations will be further described in a Conceptual Site Model (CSM) that Lakeside plans to complete.

Further, based on the results of quarterly groundwater monitoring conducted by Gunderson on both the Gunderson and Lakeside properties, HVOC concentrations at the downgradient monitoring wells on the Lakeside property have decreased significantly, to the point that DEQ approved both the shutdown of the groundwater recovery system and compliance monitoring to verify no rebound in contaminant concentrations prior to conferring NFA status. Based on these results, further investigation with respect to potential additional sources for the low and generally declining levels of HVOCs does not appear to be warranted.

Comment 2. Fill along the northern edge of the Lakeside property and forming the bank of the Willamette River is potential source of contamination to the river via the groundwater and bank erosion pathways. The fill was placed at some time between 1975 and 1980 during the Gunderson/FMC ownership of the property and the source location of the fill is not known. Soil boring data indicates that the fill layer is up to 25 feet thick. The fill has not been tested for potential COIs, with the exception of HVOCs at borings GPLI4 through GP-LI6. Leaching of potential contaminants (i.e., HVOCs, PAHs, PCBs, and metals) in the fill may occur as storm water infiltrates the fill at Drainage Basin 1 and 2 and at locations where shallow groundwater is in contact with the fill. Due to the proximity to the Willamette River, leaching of potential contaminants in the fill and downward transport to groundwater and to the river is of concern. Lakeside should perform additional characterization of the fill to determine if the fill represents a potential source of contamination to the river. An initial characterization step should include collection of groundwater samples from the existing groundwater monitoring wells located along the northern edge of the property (MW-44, MW-50, and MW-51). If COIs are present in groundwater at levels exceeding JSCS SLVs, then additional characterization of the fill should be completed. Suggested characterization includes soil and groundwater sampling at temporary borings and/or groundwater monitoring wells. Because of the unknown source of the fill, the list of COIs to be included in the fill characterization should be HVOCs, PAHs, PCBs, BEHP, and metals. The bank stabilization measures in place at the Lakeside property, including armoring with rip-rap and vegetation along the bank, appear to be effective at preventing erosion of the riverbank based on observations made by Lakeside; however, source control measures at the site should include a monitoring and maintenance plan to ensure future effectiveness of the bank stabilization measures.

This comment addresses two potential pathways from fill to the Willamette River: fill contaminants, if present, leaching to groundwater to surface water and erosion of the bank materials. We agree that there is a data gap associated with the potential groundwater pathway from the fill to the Willamette River, and also agree with the phased approach suggested by DEQ and EPA. The revised SCE will acknowledge this data gap,

and the supporting data will be included in the CSM, discussed in response to Comment 3.

We agree that the site is currently protective of bank erosion concerns, and that a monitoring and maintenance plan to ensure continued protection is appropriate.

Comment 3. A conceptual site model (CSM) should be included in the SCE. The SCE should describe the physical properties of the source contaminants, release mechanism and location, and the contaminant migration pathways. The CSM is needed for interpretation of soil and groundwater data at the Lakeside property and to draw conclusions regarding the potential impacts to the Willamette River.

We agree that a CSM will improve the integrated understanding of the site as it relates to potential contaminant migration pathways to the Willamette River. The CSM is likely to be a standalone document submitted as an addendum to the SCE. In that context, some of the specific comments are better addressed in the context of the CSM, and we note in responses to those comments that they will be addressed in the CSM addendum to the SCE.

EPA SPECIFIC COMMENTS

1. Section 2.2.3.1, Page 7, Paragraph 5 - The basis for the typical high river levels needs to be provided so the effectiveness of riprap to prevent future bank erosion can be evaluated. EPA recommends comparing the top of the bank elevation to ordinary high water (16.6' National Geodetic Vertical Datum 1929 [NGVD29] for the Willamette River at RM 9).

This section will be revised to clarify the basis for high river levels based on gauging at nearby river monitoring stations and local standards of practice for the definition of high water.

2. Section 2.2.3.2, Page 8, Paragraph 2- It is recommended that the description of the 4,000-gallon diesel above ground storage tank (AST) state whether underground or aboveground fuel piping is present, as this is relevant to the potential for soil contamination at this location.

This information will be added to the SCE.

3. Section 2.2.3.3, Page 8, Paragraph 4 - It is recommended that the paragraph discuss the range of diesel added to the asphalt cement for the various formulations, and how the addition of diesel to the asphalt cement mixture affects the ability of asphalt cement constituents to partition to water.

This information will be added, as available, to the SCE.

4. Section 2.2.3.2, Page 9, Paragraph 3 - A description of the underground fuel piping connected to the diesel AST is not included. It is recommended that this information be added.

This information will be added.

5. Section 2.3.1, Page 13, Paragraph 1 - It is recommended that additional information be provided to explain why this catch basin is non-functioning.

This information will be added.

6. Section 2.3.2, Page 15-It is recommended that the geologic cross sections that are included in Appendix D be referenced and included in the discussion of the geologic units.

References to Appendix D will be added.

7. Section.2.3.2, Page 15, Paragraph 2 - It is not clear from the description in this paragraph how a north/south trending block diverts groundwater flow to the north and northwest across the Lakeside property. Groundwater elevation contours should be provided to show how groundwater flow has been diverted by this feature. In addition, the geologic cross sections and index map that are included in Appendix D should be annotated to show the location of the raised basalt block and the possible buried channel. It is recommended that this information be added.

The buried paleochannel is described in Section 3 of the Gunderson Groundwater Source Control Evaluation (Shaw, 2011). The text will be revised to the following:

> Reports developed for the Gunderson site describe a paleochannel traversing the northwest portion of the Gunderson site from a machine shop through the vicinity of extraction well WEX-60 (Shaw, 2011). The base of this paleochannel is reported to be filled with gravel, which may form a preferential pathway with higher hydraulic conductivity than the surrounding silty sands. The east edge of this hypothesized paleochannel is indicated by a subsurface basalt escarpment that steps down to the northwest from approximately 35 to 55 feet bgs, and is shown on cross sections A-A' through D-D' prepared by Squier Associates and included in Appendix D. The approximate edge of the escarpment is shown on Figure 11 as a dashed line passing east of MW-70 and MW-71, and west of MW-37, consistent with cross sections. The potential for this feature to influence the fate and transport of contaminants will be discussed further in the Conceptual Site Model (CSM).

8. Section 2.3.3, Page 16, Paragraph 2 - Insufficient information is presented in the SCE to support the hypothesis that a buried gravel paleochannel is a preferential pathway for HVOC impacted groundwater. As discussed in the preceding comment, the SCE should present supporting information such as groundwater elevation contour maps and a map showing the surface projection of the paleochannel to support this hypothesis. It is recommended that this information be added.

See comment 7.

9. Section 3.2, Page 19, Paragraph 2 - It is recommended that the solid waste definition of clean fill be cited in this paragraph.

The revised SCE will cite the solid waste definition.

10. Section 3.2, Page 20, Paragraph 2 - The statement that tetrachloroethene, (synonyms tetrachloroethylene, or perchloroethylene PCE) has a waste code of D018 is not correct. The waste code for PCE is D039. It is recommended that this reference be corrected.

The revised SCE will update the waste code to D039.

11. Section 3.3, Page 21, Paragraph 1 - The discovery and removal of a 675-gallon UST is described in this section but no information on what was stored in this tank is provided. It is recommended that operational records be reviewed to identify they type of material that may have been stored in the 675-gallon UST.

The operational records will be reviewed for the type of material that may have been stored in the 675-gallon UST. However, as the presence of the tanks was unknown prior to the construction activity, it is unlikely that the contents of the former UST are documented in available records. The DEQ issued a No Further Action finding for the 675-gallon tank (see Appendix H of the SCE). If no documentation of the tank contents is available, then no additional action is recommended because contamination associated with the abandoned USTs has been resolved.

12. Section 3.5, Page 22, Current Regulatory Status Table - Under UIC Facility 11774, there is a listing: "1 Hazardous Injection UIC Abandoned" and "All with Formal Closure." It is not clear if this refers to the former Drywell A of UIC #3. It is recommended that the text clarify this reference and describe what abandoned means.

The revised SCE will clarify the closure status of each of the three UIC areas. In most cases, the gravel backfill remains in place, but the connecting piping has been decommissioned and the UIC is therefore no longer functional as an infiltration unit.

13. Section 4.2, Page 27, Paragraph 3-Please include a statement regarding the uncertainty in the TPH results, as footnoted in Table 5.

The text will be revised to reflect uncertainty in the sample depths for the soil samples collected in 1988.

14. Section 4.3.1, Page 28, Paragraph 2-Please include a description of how UIC #1 was decommissioned. Based on information in Section 4.3.3, the description of the direct push borings implies that the gravel drain field at UIC #1 was not removed.

See comment 12.

15. Section 4.4, Page 31, Paragraph 1 - The table entitled "History of Hard-Piped Sewer" on Page 49 indicates that the Truck Shop floor drain may have discharged to UIC #2 between 1988 and 1995. It is recommended that this paragraph list this as a possible connection.

The text will include the floor drain as a possible connection.

16. Section 4.5.2, Page 32, Paragraph 1 - Additional information supporting the assumption that the catch basin in the northwest portion of the Lakeside property may have discharged to UIC #2 should be provided in this paragraph. It is recommended that this information be added.

Additional information will be added, as identified.

17. Section 4.5.2, Page 33, Paragraph 3 - All test pit and boring locations used in the delineation of the former infiltration structure at UIC #3 and the estimated extent of the structure based on observations at these locations should be shown on Figure 11. It is recommended that this Information be added.

Figure 11 will be revised as recommended.

18. Section 4.5.4, Page 36, Paragraph 3 - It is recommended that the reference for the background concentrations metal in soil and groundwater be cited whenever a comparison of site data to background is made.

References will be added, as available.

19. Section 4.6.1, Page 37, Paragraph 2 - Please describe the field screening method.

This information will be added.

20. Section 4.7, Page 39, Paragraph 5 - Based on the data provided, the text should state that the reporting limits for PCBs, cadmium, mercury, and selenium are above the JSCS SL V s. It is recommended that this information be added.

This information will be added.

21. Section 4.8.3.3, Page 44, Paragraph 3 - The data presented in the SCE is not sufficient to support the statement that pumping at WEX-60 has created a detached plume. It is recommended that groundwater elevation contour maps showing the groundwater flow direction and the capture zone ofWEX-60 be included in the SCE to support this discussion.

This statement will be reviewed after completion of the isoconcentration maps (see comment 22). Further analysis may be deferred to the CSM report.

22. Section 4.4.3.3, Page 45, Paragraph 3 - The discussion on reductive dechlorination of HVOCs needs to be supported by groundwater data collected at the property. Additional information on the reduction oxidation conditions should be presented, including concentrations of dissolved oxygen, oxidation reduction potential (ORP), nitrate, sulfate, chloride, ferrous iron, and methane concentration in groundwater. Isoconcentration contour maps should be provided for 1,1,1-TCA and its degradation products to support this discussion. It is recommended that this information be added.

We agree that isoconcentration maps will be useful, as discussed in comment 39. The prevalence of 1,1 DCA relative to TCA is indicative of degradation by reductive dechlorination regardless of the groundwater geochemical conditions at the P-8/UIC#3 area. The key question *is whether an additional groundwater source of TCA and associated degradation products exists.* —That question will be further addressed in the CSM. However, recent groundwater monitoring results for the Lakeside monitoring wells (conducted by Gunderson) evidence that concentrations near the river have decreased to the point that DEQ has approved cessation of groundwater recovery and monitoring to evaluate post-pumping groundwater concentrations (Apex, 2015; DEQ, 2014b).

23. Section 4.4.3.3, Page 45, Paragraph 5 - Insufficient information is included to support the hypothesis that 1,1,2-TCA detections at P-8 and P-8a results from the transport of 1,1,2-TCA derived from the Gunderson property source. As noted in General Comment 1, further groundwater characterization would be required to substantiate this.

See response to comment 22 and general comment 1.

24. Section 4.4.3.3. Page 45, Paragraph 1 --The detection of 9.8 u/L[sic] of 1,1,2-TCA in groundwater at the Gunderson property is not included in Table 8.-Please update the table with this data or describe the locations and date of this detection.

1,1,2-TCA was detected at 9.8 ug/L at MW-45 in February 2005. This will be added to the report.

25. Section 5.1.4, Page 56-- The former leaching line, located north of the Truck Shop, is a potential source of contamination to the Willamette River via the groundwater pathway. However, no characterization of soil and groundwater along this feature has been completed. It is recommended that this potential source of contamination and data gap be discussed in this paragraph.

Information will be added as available. The Sampling and Analysis Plan will provide additional data and further elucidate.

26. Section 5.7.2, Page 62, Paragraph 2 - The paragraph should include a description of the piping between the 4,000-gallon diesel AST and the asphalt plant. The description should specify whether the piping includes secondary containment, leak detection, and whether is aboveground or underground. A release from underground piping could present a source of contamination to the Willamette River. It is recommended that this information be added.

This information will be added.

27. Section 5.14.3, Page 77, Paragraph I - Table 9 indicates that the laboratory reporting limits for some PAHs were above the JSCS SL V s. It is recommended that this be noted in this paragraph.

This information will be added.

28. Section 5.14.4, Page 77, Paragraph 2-Please specify the laboratory test used to determine leachable lead.

This information will be added.

29. Section 5.14.5, Page 80, Paragraph 2 - A number of data gaps in the characterization of UIC #3 prevent completion of the SCE. Data gaps include the unknown extent of the infiltration structure at UIC #3, lack of PCB results for soil and groundwater, and lack of groundwater data downgradient of UIC #3. It is recommended that the preliminary SCE pathway evaluation identify these data gaps and how they will be resolved.

The SCE will evaluate these data gaps and how they will be resolved.

30. Section 5.15.2, Page 81, Paragraph 3 - Borings P-5, P-7, GP-LI3, GP-LI6, MW-43, and MW-50 are not suitable locations for heating oil leak detection at the UST A and UST D. The CSM (see General Comment #3) should address potential for contamination from UST A and UST D to impact the Willamette River. It is recommended that this information be added.

This will be addressed in the CSM.

31. Section 5.21, Page 87, Paragraph 1 - The fill material is adjacent to the river and if TPH, PAHs, PCBs, VOCs, or metals are present in the fill, it is reasonable to expect them to leach into groundwater or surface water and travel to the river. It is recommended that this paragraph be revised accordingly.

Leachability will be verified through groundwater sampling. See response to general comment 2.

32. Section 6.1, Page 87, Paragraph I - BEHP was detected in storm water sampled at location MH. Therefore, BEHP should be included in the list of COIs. It is recommended that this information be added.

BEHP will be evaluated in the existing data set, including laboratory quality assurance/quality control and possible onsite sources, and a recommendation made regarding inclusion.

33. Section 6.2, Page 88, Paragraph I - Characterization data collected at the Lakeside property is insufficient to determine that the HVOC plume originates only from the Gunderson property. It is recommended that the paragraph should be revised accordingly.

See response to comment 2.

34. Section 6.2.3.2, Page 91, Paragraph 2 - Based on data presented in the SCE, 1,1,2-TCA is only detected at borings P-8 and P-8a. It is recommended that the statement that all of the listed HVOCs originate at the Gunderson property should be revised accordingly.

A more comprehensive data evaluation will be included in the CSM, which will show the distribution of 1,1,2-TCA.

35. Section 6.3.2, Page 96, Table "Features Where Groundwater Was Evaluated as a Potentially Complete Pathway" - This table should be updated to include the fill material along the northern edge of the Lakeside property as a feature of interest in the groundwater pathway evaluation. It is recommended that this information be added.

Agreed, with the conditions discussed in comment 40.

36. Section 7.0, Page I 05, Paragraph 2 - EPA questions the conclusion that the Gunderson plume is the only potentially complete groundwater pathway at the Lakeside property. As discussed in General Comment #1, groundwater results at P-8 and P-8a suggest an additional source may be present in the vicinity of UIC #3 and the leaching line. In addition, the leaching of possible contaminants in the fill at the northern side of the property is another potential groundwater migration pathway to the Willamette River.

See specific comment 40 and general comment 2.

37. Section 7.0, Page 105, Paragraph 4 - Applying an order of magnitude reduction in measured PAH concentrations to account for turbidity is not an appropriate evaluation method for the SCE. As discussed under General Comment #3, groundwater samples should be collected from existing groundwater· monitoring wells along the north edge of the property and analyzed for PAHs to confirm PAH concentrations in groundwater do not exceed JSCS SLVs.

Agreed. Additional groundwater samples will be collected. Sample analysis will include centrifuging preparation to reduce the potential for sample bias by artifactual turbidity.

38. Figures 6, 11, 13, 14, 15, 16 - Please show the location of the asphalt plant on these figures.

Agreed.

39. Figure 13, 14, and 15 - The HVOC isoconcentration contours in these figures present groundwater results from multiple dates and multiple depths and are difficult to interpret. Revised isoconcentration contours for the key HVOCs for each groundwater zone should be presented so that migration of the HVOC plume and natural attenuation processes can be evaluated. EPA recommends including isoconcentration contours for 1,1,1-TCA; 1,1,2-TCA; 1,1-dichlorethane (1,1-DCA); 1,1-dichloroethene (1,1-DCE); 1,2-dichloroethane (1,2-DCA); cis-1,2-dichloroethene (cis-1,2-DCE); PCE; TCE; and vinyl chloride.

Agreed. Isoconcentration maps will be included in the CSM.

40. Table 10 - For the general category, Fill, the additional SCE potentially applicable pathway of groundwater should be listed. It is recommended that this information be added.

The SCE will include groundwater to surface water as potentially applicable, and the CSM will evaluate whether groundwater is a complete pathway.

NEXT STEPS

This section summarizes the reporting and additional investigation work to be completed in response to the comments above.

Supplemental Investigation Sampling and Analysis Plan

A Supplemental Investigation Sampling and Analysis Plan (SAP) will describe sampling and analysis details for the proposed investigations:

- In the fill area paralleling the river bank
- In existing wells for PCBs and cPAHs

The SAP will likely incorporate a phased approach similar to that recommended in EPA comments beginning with targeted groundwater sampling and expanding if needed based on the initial results.

Conceptual Site Model Report

The Conceptual Site Model (CSM) will be prepared to discuss the evaluation of potential contaminant pathways via groundwater and storm water to the Lower Willamette River. The CSM will incorporate the findings of the supplemental investigations. The CSM may be completed as a separate addendum to the revised SCE report.

Revised Source Control Evaluation Report

After completion of the Conceptual Site Model and additional investigative work as recommended or required by these DEQ and EPA comments and performed independently by Lakeside, the 2013 SCE will be updated and submitted to DEQ for review and approval to finalize the SCE.

REFERENCES

Ash Creek Associates and Apex [Ash Creek], 2013. Supplemental Groundwater Source Evaluation, Gunderson Facility, 4350 NW Front Avenue, Portland, Oregon. April 16, 2013.

Apex, 2015. Groundwater Monitoring Report, Fourth Quarter 2014, Gunderson LLC, Portland, Oregon. Prepared for Gunderson LLC. May 7, 2015. 1935-01.

DEQ, 2014a. Letter from Jim Orr to Steve Hahn, Re: DEQ Comments for Lakeside Site Source Control Evaluation (SCE), December 2013, Lakeside Industries, ECSI #2372. October 29, 2014. [Note: includes January 2014 EPA comment letter to Jim Orr as attachment].

DEQ, 2014b. Q4 2013 Groundwater Monitoring Report, Gunderson Facility, ECSI# 1155. May 15, 2014.

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We trust that the responses and proposed additional deliverables discussed above are sufficient to satisfy the comments from the DEQ and EPA.

Sincerely,

Pacific Groundwater Group

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Final DEQ Comment Response Letter.docx

Cc: Karen Deal, Lakeside Industries
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